STAFF REPORT

BEAR VALLEY WATER DISTRICT
BEAR VALLEY WASTEWATER TREATMENT PLANT
ALPINE COUNTY

A new NPDES Permit for the Bear Valley Water District Wastewater Treatment Plant is being considered for adoption.

BACKGROUND

Bear Valley Water District (hereafter referred to as Discharger) owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service to the community of Bear Valley, Bear Valley Ski Resort, and the Lake Alpine/United States Forest Service. The treatment and disposal facility is in Alpine County, approximately ½ mile west of the community of Bear Valley. The final effluent discharge to land is currently regulated under separate Land Disposal Requirements, Order No. 5-01-208.

TREATMENT AND DISPOSAL FACILITY DESCRIPTION

The Bear Valley Wastewater Treatment Plant has a design treatment capacity of 0.5 million gallons per day (mgd). The current annual average daily flow to the plant is 0.080 mgd and the daily peak wet weather flow is around 0.225 mgd. The wastewater treatment units at the Bear Valley facility consist of an approximately 12.5 million gallon aeration pond with aeration provided by diffusers installed at the bottom of the pond. Air to the diffusers is provided by three 30 Hp blowers. The treatment pond is split into two equal sections by a redwood baffle. The treated and chlorinated effluent is pumped to a 325 acre-foot unlined storage reservoir for final disposal by spray irrigation during summer months. Spray irrigation is limited to the summer months (usually July through October). The proposed discharge to surface waters is a result of inadequate wastewater storage capacity due to inflow/infiltration (I/I) to the collection system, the high groundwater table, and to the greatest extent rain and snowfall flowing on and into the treatment and storage ponds. Expansion of the storage reservoir is not feasible.

JUSTIFICATION FOR BENEFICIAL USES OF RECEIVING WATER

The receiving stream is Bloods Creek, which is tributary to the North Fork of Stanislaus River and New Melones Reservoir. The beneficial uses that currently apply to the North Fork of Stanislaus River are municipal and domestic supply, agricultural irrigation, water contact recreation, non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, wildlife habitat, groundwater recharge and freshwater replenishment. These beneficial uses apply to Bloods Creek through the 'Tributary Rule'.

PERMIT ISSUES

Due mainly to the high elevation of the community and the abundance of precipitation, the Discharger's wastewater treatment facility generates more wastewater (i.e., wastewater,

precipitation – snow and rain, and groundwater infiltration) than the storage and disposal facilities can adequately handle. No additional land is available for expansion of the reservoir or existing land disposal facilities. During past wet years, the Discharger has entered the winter season with a substantial amount of water still in its storage reservoir from the previous winter. Consequently, emergency (unauthorized) discharges of effluent from the storage reservoir were released to a tributary to Bloods Creek via the reservoir's spillway. The Discharger attributed these unauthorized discharges to a lack of adequate storage capacity, excessive I/I in the wastewater collection system, back-to-back wet years, and heavy snowmelt. As a result, the Discharger has applied for a permit for seasonal discharge of treated effluent to Bloods Creek in order to avoid future unauthorized discharges to surface waters. Last winter demonstrated an increasing need for alternative wastewater disposal. The Discharger began the 2005 winter season with a near-empty reservoir. With a 1 in 25 year seasonal precipitation year, about 140% of seasonal average precipitation, the storage reservoir nearly overflowed. Previous estimates were that the reservoir would only spill in the event of a 1 in 100 year wet seasonal occurrence.

This Order permits effluent discharge to occur only when necessary, during in extremely wet winter periods, during snow melting season, and only when the effluent can receive at least 20:1 dilution from the receiving water. Furthermore, the Order requires all efforts be made to begin each winter season with an empty storage reservoir. Prohibitions in the Order require implementation of the Discharger's 2002 *Land Disposal Maximization Plan* for the facility, which evaluated the feasibility of many options that would either minimize flow to the land disposal facilities or maximize the land disposal capability of the facility. The plan stated the Discharger would implement five of the options evaluated and has concluded that if the chosen plan were implemented, land disposal capacity would be increased by 81 MG. The five options chosen were: (i) utilizing a minimum of 80 acres of the total 160 acres suitable for irrigation disposal must receive irrigation water during the summer months; (ii) use of a 10 acres portion of Orvis Meadow land, utilized in the past for land disposal; (iii) continued implementation of water conservation measures and I/I reduction program; (iv) placement of enhanced evaporators, controls and pumps in the storage reservoir; and (v) official request of USFS for continued use of leased lands beyond the current expiration dates of 2011 and 2015. Based on the Discharger's initial steps taken in implementing the plan and the commitment to implement the plan in its entirety, the Regional Board rescinded Cease and Desist (C&D) Order No. 5-01-209 on June 7, 2002.

The Order has evaluated the beneficial uses of the receiving waters and determined that the existing secondary level treated effluent will protect all beneficial uses identified in the Basin Plan if the discharge can achieve a minimum of 20:1 dilution in the receiving water. The Order includes effluent limitations for waste constituents that have been found in the discharge that could potentially pose a threat to the beneficial uses of the receiving water. These constituents include, chlorine, copper, iron, manganese, settleable solids and total coliform. However, the 20:1 dilution requirement is not granted as a dilution credit in the Order. Provisions in the Order provides an opportunity for the Discharger to complete a comprehensive assimilative capacity analyses of Bloods Creek, and if appropriate, apply to the Regional Board to reopen the Order to consider a dilution credit for specific constituents (copper, iron, manganese). Without the benefit of dilution the treated effluent, containing copper, iron, manganese, has a reasonable potential to

cause an exceedance of water quality standards. Additional data is necessary to determine if the concentrations of these constituents is representative of the effluent. For the CTR constituent copper, a time schedule has been provided in the Order to develop a corrective action, which evaluates reasonable measures to achieve full compliance with the new final water quality based effluent limitation. For iron, manganese, a Time Schedule Order is proposed to develop methods of compliance with the NPDES Order's effluent limitations.

DISCHARGER'S COMMENTS

Staff met with the Discharger's Engineer on three occasions (8 March, 21 April, and 27 July, 2005) to discuss the Discharger's concerns with the proposed Order. The Discharger stresses that it currently does not have sufficient land for disposal of effluent originating within the District and it is obligated to plan for providing this service year around. Since suitable private land is not available except though condemnation, lawful discharge to Bloods Creek (through exercising this NPDES permit) is the only means available to it.

A summary of their concerns raised during the first two meetings is included in the agenda package (May 9, 2005 and July 8, 2005 letters from Mr. Neal Colwell, District Engineer). Although most of their concerns either have been addressed and/or incorporated into the proposed Order, a few issues still remain unresolved due to lack of adequate documentation and they are discussed in this report.

The Discharger submitted a *Land Disposal Maximization Plan* for the facility, which evaluated the feasibility of many options that would either minimize flow to the land disposal facilities or maximize the land disposal capability of the facility. The following is the list of the 5 tasks the Discharger chose to maximize land disposal and the current status of each task:

a) Design and implement a water conservation program. Status: The Discharger's *2004 Annual Report* does not document full implementation of this plan during the year. The Discharger's July 24, 2005 memo to ECO:LOGIC provided only an update on their on-going water conservation program. Therefore, the RWQCB staff requested the Discharger to submit a detailed report documenting all the Best Practicable Treatment Control (BPTC) measures taken to successfully implement the water conservation program. Documentation to include efforts in designing and implementing educational programs, advertisement in the local newspapers, and mailers to the water customers in the area.

b) Implement an Inflow and Infiltration (I/I) Reduction Program. Status: As with the *Water Conservation Plan* above, the Discharger's *2004 Annual Report* does not document full implementation of this plan during the year. The Discharger's July 24, 2005 memo to ECO:LOGIC provided only an update on their on-going I/I reduction program. Again, the RWQCB staff requested the Discharger to submit a progress report documenting both the District's commitment to I/I reduction and the results of the BPTC measures taken to successfully implement the I/I reduction program. Documentation to include specific list

of sewer system monitoring and investigation activities that has been or will be implemented on an annual basis, schedule for finalizing the sanitary sewer overflow prevention and maintenance plan, annual budgeting for improvements like; sewer service lateral testing, TV inspection of sewers, system repairs, maintenance, cleaning and evaluation as part of the I/I reduction program.

c) Increase irrigation application by continuing to evaluate potential expansion within current permitted land by installation of controls and pumps to maximize irrigation and minimize runoff potential. Status: As with the *Water Conservation Plan and I/I Reduction Program* above, the Discharger's *2004 Annual Report* does not document the intended implementation of this alternative when needed. Therefore, the RWQCB staff requested the Discharger to document their efforts in exploring irrigation disposal acreage available for potential expansion within the current permitted lands.

d) To further evaluate employing enhanced evaporation during irrigation seasons if high wastewater or I/I flows are experienced. Status: The Discharger, in its July 8, 2005 letter, stated that enhanced evaporation would be contrary to BPTC because it concentrates salinity constituents in the wastewater. Although it is true that enhanced evaporation would increase the concentration of salinity constituents to some degree, it would not increase the overall salt load to the wastewater and to the land, and therefore does not appear to be contrary to BPTC. The Discharger also stated that implementation of this alternative would be cost prohibitive as a means of normal effluent disposal and therefore should not be considered except in emergency situations. The Discharger has not provided documentation that enhanced evaporation is cost prohibitive. Furthermore, enhanced evaporation would not have to be routinely implemented on a permanent basis. A reasonable approach would be to implement it only during those years when there has been excessive precipitation and there is a threat of discharge from the storage reservoir in a subsequent winter. The Discharger implemented this alternative successfully in 2001 when faced with a significant amount of carry-over water from the previous year.

e) Apply for extension of the U. S. Forest Service Special Use Permits beyond year 2011. Status: The Discharger has not submitted written documentation from the U.S. Forest service demonstrating the improbability of this option. Therefore, the RWQCB staff has requested the Discharger to provide a copy of the application requesting USFS for continued use of leased land beyond existing leased period.

STAKE HOLDERS' COMMENTS

Stockton East Water District's (SEWD) issues of concern:

SEWD requests that a NPDES permit for the Discharger not be considered for adoption. SEWD believes that the Discharger, by implementing all five options in their 2002 *Land Maximization Plan,* will have enough land disposal capacity for several back to back 100-yr storm events and still accommodate the current growth rate to the year 2015. If

the Regional Board insists on issuing the permit, SEWD requests that tertiary treatment be required as a condition of any discharge to surface water.

DEPARTMENT OF HEALTH SERVICES' COMMENTS

The Department objects to granting an NPDES permit to the Bear Valley Water District. The Department is convinced that there are land disposal alternatives that should be utilized prior to the establishment of an NPDES permit that allows discharge of the wastewater to the pristine headwaters of the Stanislaus River system. It also suggests that the Bear Valley consider upgrading its current treatment to a tertiary level to facilitate the use of their wastewater effluent in a recycling program and not discharge into a drinking water source.

STAFF RESPONSE

The Discharger has evaluated wastewater disposal alternatives and determined no additional land is available for either additional storage or land disposal. Most of the surrounding land is federally owned and not available except for lands currently leased to accommodate wastewater generated on federal facilities. Staff agrees with the Discharger's determination. The remaining wastewater disposal options are to optimize available facilities (through the *Land Maximization Plan*) and disposal of excess treated wastewater by surface water disposal. Initially, surface water disposal would not be necessary except in years exceeding 140% of normal precipitation (a 1 in 25 year event). However, as the Discharger continues to grow through the development of existing District land, the need and frequency of discharge will increase.

The Department of Health Services has recommended on previous NPDES permits that treated domestic wastewaters discharged to surface waters where a minimum of 20 to 1 dilution is not present should be treated to tertiary levels to protect public heath. The proposed Order requires a minimum dilution of 20 to 1, stream volume to effluent volume, be demonstrated prior to discharge. Flow of the receiving water is required to meet this demonstration. Tertiary treatment was considered by staff but concluded additional treatment would only provide minimal benefits due to the highly diluted state of the treated wastewater contained in the storage reservoir.

LETTERS OF SUPPORT

On July 25 and September 23, 2005, staff received letters of support from the Chairman, Alpine County Board of Supervisors and a local resident architect, respectively, expressing their support for the Bear Valley Water District's application for permit to discharge wastewater into Bloods Creek.

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SUMMARY

The Tentative Order was distributed for public review on 21 March 2005. Comments were received from the Discharger, Stockton East Water District and the Department of Health Services. All comment letters and staff's response to comments are included in the Board's agenda package. Based on the comments received the Order was modified. The revised Tentative Order was sent out for review on 9 September 2005. Comments on the revised Tentative Order are due on 10 October 2005. The Discharger and Stockton East Water District expressed their intent to contest this item. The staff will respond to any new comments on the revised Tentative Order in writing prior to the Board meeting and will address all major issues during the presentation.

REQUIREMENTS OF THE PROPOSED ORDER

- Effluent limitations contained in the Order are protective of the receiving water for all existing, probable, and future beneficial uses.

- The Order requires the Discharger to conduct additional monitoring for constituents; *aluminum, ammonia, fluoride, chloroform, and electrical conductivity* with a re-opener provision should monitoring results indicate that the discharge has the reasonable potential to cause an exceedance of water quality criteria of the receiving water.

- The Order limits the effluent discharge to only when necessary, during in extremely wet winter periods, during heavy snow melting season, and only when the effluent can receive at least 20:1 dilution from the receiving water.

- The Order requires submittal of work plan for continued implementation of the Water Conservation and collection system Infiltration/Inflow reduction program.

- The Order requires annual (by 15 June) submission of a Notice of Intent (NOI) to discharge to surface water for years where a discharge is anticipated due to wastewater carryover from the preceding winter period. The NOI must include an estimate of the amount of carryover of wastewater beyond 1 October (an estimate of wastewater volume utilizing pond storage capacity).

- The Order requires the Discharger to submit, by 1 November of the year prior to the expected discharge year, a revised water balance demonstrating the need to discharge after implementing the land disposal maximization measures.

- The Order requires Regional Board staff's written concurrence prior to discharge to surface water.

- The Order prohibits discharge to surface water from July 1st through December 31st and anytime prior to maximizing land application of the effluent.

RECOMMENDATION

Adopt the proposed NPDES permit and Time Schedule Order